

Mississippi River Sediment Delivery System

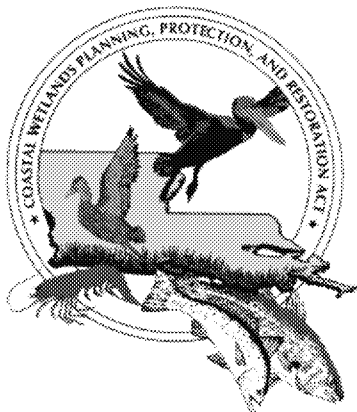
Bayou Dupont (BA-39)

Field Session

April 20, 2011

Harvesting the Rich Resource of the River

CWPPRA



Federal Sponsoring Agency
U. S. Environmental Protection Agency

State Cost Share Sponsor
Louisiana Office of Coastal Protection and Restoration





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Bayou Dupont

Image # 90902 6039
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Project area before construction.

Location:

Located approximately 20 miles South of New Orleans on the west bank of the Mississippi River, adjacent to Bayou Dupont and southeast of Cheniere Traverse Bayou this project is located in the vicinity of Ironton in Plaquemines Parish and Lafitte in Jefferson Parish, Louisiana. The general area lies west of LA Hwy 23 about 3.7 miles northwest of the Myrtle Grove Marina within the Barataria Basin.



Project site 5 months after pumping of sediment was complete

Problems:

Project area marshes are badly degraded and have converted to mostly open water, likely due to a combination of causes including a lack of natural freshwater and sediment input, subsidence, and the dredging of oil and gas canals. The project's proximity to renewable Mississippi River sediment sources provided an excellent opportunity to design a sediment delivery system that utilized renewable sediment dredged from the river to restore and create wetlands in this area of critical need.



Cutterhead dredge



Booster pump located in the river



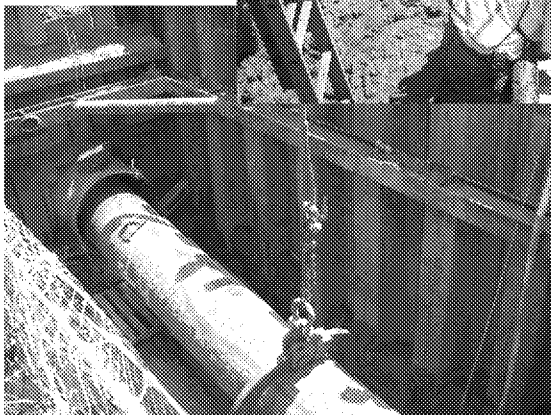
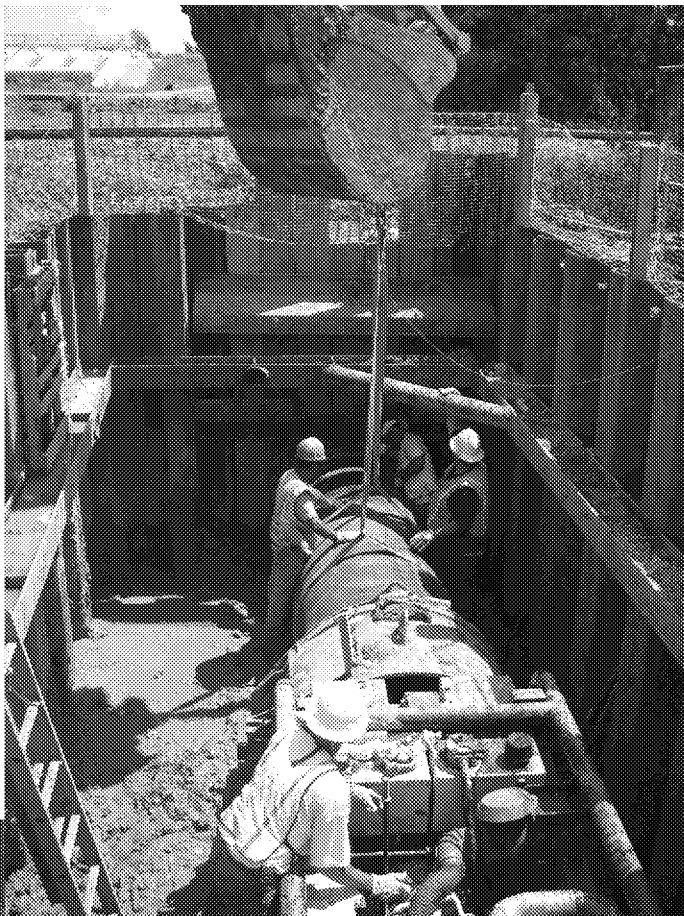
Aerial view of the dredge and booster pump

Restoration Strategy:

The project harvested sediment from the Mississippi River to create marsh in a rapidly eroding and subsiding section of the Barataria landbridge.

The project utilized a hydraulic cutter head dredge to mine renewable sediment from the Mississippi River between river miles 63 and 65. Approximately 2,300,000 cubic yards of sediment was pumped approximately 5 miles through a pipeline to the receiving marsh area.

The pipe that carried the sediment from the river to the marsh was jacked and bored under Louisiana Highway 23 and the Missouri Pacific Railroad. This Bayou Dupont project represents the first example of pipeline transport of sediment from the river to build marsh as a CWPPRA project. Results from this project should serve to demonstrate the value and efficacy of greater use of pipeline-conveyed river sediments for coastal restoration.



Pipe was jacked and bored under the road and railroad

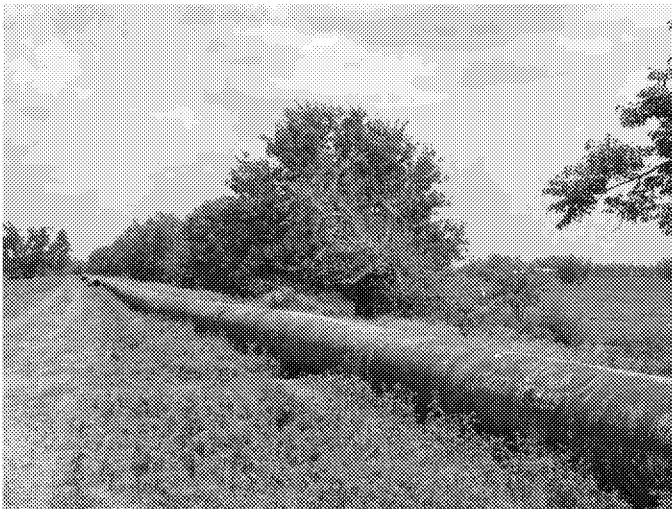
Accomplishments:

This project created/restored approximately 493 acres of brackish marsh by delivering sediments dredged from the Mississippi River via pipeline, and planting marsh vegetation.

It is estimated that the project will result in a net benefit of 326 acres remaining after 20 years when compared to the land area without the project.

The project also partnered with NOAA to construct approximately 87 acres of additional marsh using funds from the American Recovery and Reinvestment Act of 2009.

*Pipe travels over
levee to convey
river sediments to
the receiving area*



Section of the 5+ miles of pipeline used to convey sediment



River sediment is deposited via a pipeline that is approximately 5 miles long.



Sediment is spread immediately after it is pumped from the river.



Pre-construction view of project area.



3 month post-construction view of project area.

Project Timeline:

Engineering and Design Approved	January 2003
Engineering and Design Completed	November 2007
Construction Approval/Funding	January 2008
Notice to Proceed (Construction)	February 2009
Dredging Completed	March 2010
Construction Completion	June 2010

Cost:

Cost estimates for the project include:

Engineering and Design	\$2.7 million
Construction	\$25.6 million
Total Cost (including monitoring for 20 years)	\$28.9 million



The Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) is federal legislation designed to identify, prepare, and fund the construction of coastal wetlands restoration projects. These projects provide for the long-term conservation of wetlands and dependent fish and wildlife populations. Projects funded by CWPPRA are cost-effective ways of creating, restoring, protecting, and enhancing coastal wetlands.

CWPPRA has made many accomplishments in its twenty years as a leader in coastal restoration

The success of the CWPPRA program has been essential in providing critical ecosystem stabilization along Louisiana's coast and has provided pioneering solutions for land loss. In addition to the physical land gains made by CWPPRA, this interagency organization has been instrumental in providing public education about Louisiana's land loss and in seeking public participation in coastal restoration activities.

TOTAL CWPPRA PROJECTS: 150
COMPLETED CWPPRA PROJECTS: 88
CWPPRA PROJECTS UNDER CONSTRUCTION: 15
CWPPRA PROJECTS IN ENGINEERING AND DESIGN: 47
with 8 of the 47 scheduled for construction in FY2011

Since 1990, the net Louisiana wetland area that has been protected, created, or restored is 110,000 acres.



US Army Corps
of Engineers
New Orleans District



MISSISSIPPI RIVER SEDIMENT DELIVERY SYSTEM BAYOU DUPONT MARSH CREATION PROJECT (BA-39)

Background:

The Mississippi River Sediment Delivery System – Bayou Dupont Marsh Creation Project (BA-39) project is located in the Barataria Basin within Jefferson and Plaquemines parishes, about 3.7 miles northwest of Myrtle Grove. The Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Task Force designated BA-39 as part of the 12th Priority Project List in 2003. The Environmental Protection Agency (EPA) is the lead federal sponsor for this project with funding approved through the Coastal Wetlands Planning, Protection and Restoration Act of 1990 by the United States Congress and the Wetlands Conservation Trust Fund by the State of Louisiana. The Louisiana Department of Natural Resources (LDNR) is the local sponsor. The LDNR Coastal Engineering Division performed the engineering and design services. The total estimated fully funded cost for the project is \$28.9M.

The objective of the project is to create approximately 493 acres of sustainable marsh. This project constitutes using the renewable resource of Mississippi River sediment to create marsh in a rapidly eroding and subsiding section of the Barataria landbridge. Now converted to mostly open water, the poor condition of this marsh is likely due to a combination of subsidence, dredging of oil and gas canals, and lack of freshwater input. The project area is located near the Mississippi River and is a prime opportunity to utilize the relatively new initiative of creating marsh using Mississippi River sediment as opposed to hydraulically dredging material from within the Barataria Basin.

Timeline:

- The Task Force approved design funding in January 2003 (\$2.7M).
- Final plans and specifications were completed in 2007.
- The Task Force approved construction funding in January 2008 (\$21M).
- LDNR awarded a construction contract in the amount of \$20,719,145.50 and issued a Notice to Proceed to Great Lakes Dredge and Dock Company, LLC in February 2009.
- Great Lakes Dredge and Dock Company began construction in April 2009.
- Construction Completed in May 2010
- Vegetative Planting Performed in June 2010

Project Facts and Features:

- 26,800 linear feet of earthen containment dikes was constructed to facilitate the creation of approximately 493 acres of intertidal marsh at a constructed elevation of +2.0' NAVD 88.
- Marsh platform expected to settle to a target marsh elevation of +1.3' NAVD 88 after 10-years.
- Approximately 2,300,000 cubic yards of sandy material was placed in two marsh creation areas.
- A third area of approximately 87 acres was funded through a NOAA ARRA Grant and CWPPRA funds.
- First CWPPRA project utilizing renewable river sediment to create marsh. River sediment brings new sediment into the system and is not the normal project where a borrow site from an interior area is used.
- Mississippi River sediment was hydraulically dredged by the *Florida*, a 36", 16,000 HP cutter suction dredge, between Mississippi River Miles 63 and 65. The sediment was pumped approximately 5 miles.
- Two permanent 48" smooth steel casing pipes were installed underneath LA Highway 23 and New Orleans and Gulf Coast Railway to facilitate the temporary placement of a dredge slurry pipeline.
- Intertidal marsh vegetation was planted post-construction. Approximately 26,000 units were planted.
- No maintenance is anticipated, and EPA and OCPR will continue to monitor the project over the 20-year project design life.

EPA Project Manager – Paul Kaspar, Kaspar.Paul@epa.gov (214) 665-7459 – April 15, 2011

Louisiana Coastal Restoration Projects

Map showing the Mississippi River and surrounding areas, including New Orleans, Lake Calouachie, Bayou du Large, and Spanish Lake. The map highlights various restoration projects and infrastructure, such as the I-10 corridor and the I-55 corridor. The map is labeled with 'BA-39' in the lower right quadrant.

Legend:

- Surface Water Center
- EPA Region 6

Scale: 0, 2.5, 5 Miles

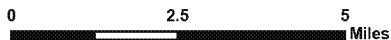
Data Source: Sonris

Image Source: Bing Aerial 2009

Created by: Surface Water Center

EPA Region: 6, Dallas

Date: April 18, 2011



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